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ABSTRACT

The implications of delineating and determining the sequence of programming decisions are shown in the selection of building committee membership. The role relationships of client and architect are discussed in terms of decision-making function. Decision tables are described as aids in problem analysis. Other topics include information and creativity, and the possible implications of greater emphasis on the concepts and tools of sociological research in architectural education. (MM)

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DECISION-MAKING THEORY APPLIED TO ARCHITECTURAL PROGRAMMING: SOME RESEARCH IMPLICATIONS

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Introduction

I am indeed pleased to be here today. Just a year ago I was being introduced to your profession in a course on the sociology of architecture by Dr. Robert Gutman of Rutgers University. As many of you know, Dr. Gutman is deeply interested in the subject of architectural programming and has transmitted his enthusiasm to his students.

It was a year ago, too, that I was observing the programming sessions for Livingston College ofRutgers University involving the administrators of the proposed College and the architect representatives of the firm Vincent Kling Associates. I asked myself how the process in which they were engaged could be conceptualized. What analytical perspective would be useful in understanding their complicated task? How might sociological theory and research be applied to architectural programming? It is my purpose today to share with you the insights I have had into these questions by discussing first how the process of programming might be conceptualized and analysed, and second, some areas of research which are suggested by using this analytical approach.

Conceptualizing Programming as Decision-Making

By architectural programming I will mean the process of stating, either verbally or in written form, the needs and requirements of the client and/or user which the architect then translates into the design of a building.[1]

I have come to understand architectural programming as essentially a process of decision-making, of choosing between alternatives based on the knowledge and values of the decision-makers. These decisions are made by the architect and the client acting either separately or together. For example, the client alone decides how many people the building will house, the architect alone decides on the exact interrelationship of spaces in the building, and the client and architect acting together decide on such matters as the feasibility of creating multi-purpose spaces, the desirability of underground parking, etc.

Various sociologists have offered models to which one can refer for illumination about theprocess of decision-making. These models usually have from five to seven steps, to some extent analogous to computer operation stages, which include establishing contact with interacting parties, gathering information about the needs of the acting system in light of its goals, evaluating the information, making the decision, issuing the orders to effect the decision, evaluating the decision and finally, storing the evaluation of the decision for future reference.[2]

Use of this model in conceptualizing programming has led me to two basic propositions which I would like for you to consider:

1. Every decision made in the programming or design phase of architecture, whether one of overall purpose or ofminute detail, can be broken down into steps for analysis. On a concrete level we would be able to study what constitutes a certain client's decision to build or his decision to hire a particular architect. Similarly, we could analyse what constitutes the architect's decision to offer one design solution as opposed to another.

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2. Every decision made in the programming or design phase can be specified in the chronological sequence in which it must be made. For example, the architect cannot decide on the arrangement of lounge spaces in a college dorm until he knows the client's decision on who the dorm will service. Will it be co-ed? for men only?

Some Implication of Decision-Making Theory for Programming Research

These propositions have focussed my attention on several areas of potential research which might contribute to some of the questions being raised relative to architectural programming. I will use the planning of a university residence hall throughout this paper for purposes of illustration, though these proposals could apply equally well to any other type of building or client institution.

First, since most building now is done for institutions and not for private individuals, let us consider the important question of who the decision-makers taking part in the programming will be. Who will comprise the committee which defines what the client's needs and requirements are?

If the proposition is accepted that the decisions to be made in programming are known and can be analysed in the logical sequence in which they are to be made, then it follows that the types of people who are qualified and competent to make those decisions can also be stated. This israrely done, however. In the large university we usually find the same people serving on the programming committees for all new buildings. The committee might include the dean of students, the academic dean, the university architect (if one exists), the building and grounds supervisor, a faculty member, and perhaps a student. This collection of people, so important in communicating the university's needs to the architect, is often chosen on criteria which are not directly related to the decisions to be made during the programming. In part this reflects a lack of awareness on the part of the client institution about the decisions which it is responsible for making. Thus those who wind up on the committee often lack the knowledge (or access to it), the competence, and the power to make the necessary decisions. But the college planners are no longer going unchallenged! The recent reaction of the students at City College at not being invited to take part in the decisions affecting their built environment is just one example of the discontent with such committees.

Research could help to determine the nature of the decisions to be made and their sequence. If this were known then selecting the best qualified people to make those decisions would be decidedly easier and less haphazard then at present.

A second research focus which follows from the foregoing propositions, namely that steps of decision-making in programming may be analysed and sequenced, concerns methods for gathering information about requirements from the future users (e.g. occupants and administrators) which would be relevant to those decisions. Useful information may be gathered systematically through interviews, questionnaires and observations from future users without actually involving all of them on the committee. However, this information can be solicited only if the permanent members of the committee have knowledge, competence and power to obtain it. It is possible through soliciting such information from the users to give them a sense of real involvement in the planning of a facility. It is hard to argue otherwise than that if the decision-makers are fully informed and involved through research of this kind, then the best decisions will be made.

These first two research areas both concern representation of various aspects of the clients needs and requirements. Another area in which research is needed relates to the role responsibilities of the client and of the architect in programming. If the process of making a decision is known and specified, there exists greater opportunity for clarification of role responsibilities on the part of both parties, the client and the architect. Last year at the Third Annual Meeting of this conference Margaret Farmer of the Educational Facilities Laboratory said, "If enough decisions are made by default, the whole process (planning) can only be thought of as unplanning." Just so, if the architect assumes that the client will decide on some item and the client is not aware of this assumption, then perhaps neither will do it and the decision will be made by default. But if all of the required decisions are anticipated beforehand by the architect through use of a model, and if he communicates them to the client well in advance of the actual times at which they must be made, then the role responsibilities of each may be defined in a manner understandable by both. Thus the liklihood of decisions being made by default is drastically reduced.

How might the architect define his role responsibilities vis-a-vis the client? At the outset he must know what kinds of information his client can supply which will be of use to him in designing the building. This would include detailed information on the eleven items which Harold Horowitz says are found in a well-organized and thoroughly detailed architect's program including the objectives of the master plan, special restrictions and limitations on the design, functional requirements for the facility, characteristics of the occupants, flexibility for future growth and changes in function, and priority of need among the various requirements.[3] This requires that the architect assume a fairly assertive role in directing his client to supply him with whatever reliable information the client might have or can secure concerning the decisions which must be made. Relevant data of this type usually makes it unnecessary to railroad the client into a particular decision.

The client has responsibilities too. He must supply the kind of information which the architect needs without infringing on the artistic and legitimate professional prerogatives of the architect. The client must invest time and effort in selecting a good architect, and then he must give that architect freedom to exercise his creativity in designing the building within, of course, the limits set by the client's objectives and his resources. Because of his superior training and familiarity with the design process and how it may be systematically programmed it will have to be the architect who takes the lead in the delineation of these role responsibilities.

Again we see that through specifying decisions to be made, research can illuminate the role responsibilities of all the parties in the programming process.

A third area in which research on decision-making in programming could be of great value concerns a specific method or tool for making decisions by using what I have termed "decision tables." Such tables indicate the priority of decisions ranging from those having the broadest implications to those having the narrowest. While the tables are basically extensions of itemized checklists such as those used by various English and American architects, they allow for multivariate analysis and for a consideration of the consequences of a decision in one cell for the decisions in all the other cells.

DECISION TALBES

Decision 1: Functions to be served by the building

Function	Need			
	Yes			No
	all male	all female	married or coed	
Lounge				
Living				
Dining				
Bathing				
Sleeping				
Etc.				

Decision 2: Residential group unity to be served for each function (as indicated by all "yes" cells above in Decision 1:)

Function	Unit Served					
	Entire group		Small group		Individual	
	yes	no	yes	no	yes	no
Lounge						
Living						
Dining						
Bathing						
Sleeping						
Etc.						

Decision 3: Qualities to be connected with each functional space:

LOUNGE SPACE

Qualities	Unit Served					
	Entire group		Small group		Individual	
	yes	no	yes	no	yes	no
Privacy maximized						
Community feeling maximized						
Adaptability for dining functions						
Adaptability for studying						
Adaptability for conferences, lectures						
Etc.						

These tables are used for illustration. Others can be made for any other kind of space to be created such as manufacturing or office space. Such tables as these would act as a guide to all parties concerned and eliminate much of the time spent wandering from one topic to the next without settling any matters concretely. It goes without saying that the programming process is full of uncertainties and that there are many changes in initial decisions which are made in light of later ones. In using an exhaustive guide, at least one would know which points he had finalized and which had to be reconsidered. But such a guide is not possible without research on the decisions to be made in programming.

A fourth area in which research findings on decision-making would be useful would be in formulating a system of classifying materials written about all aspects of the building and design process. If architectural programming is seen as a process of decision-making, and if research indicates what these decisions are, then written materials such as speeches, studies, documents, articles, and books about architectural design and programming might be classified according to the decisions to which they relate. For example, studies and articles on the decision to hire an architect might be compiled. Similarly, materials could be classified regarding the client's decision to establish an ongoing programming committee. After such a classification of all information concerning the programming process we could determine those types of decisions on which we have accumulated knowledge and those types on which we have not. This would be a valuable guide in conducting research on all aspects of the program and design process.

A final area of research which was suggested to me by use of the decision-making model was an investigation of the relationship between the amount and kind of information available to the architect and the creative aspects of his design. Virtually nothing is known on this topic. But a tenable hypothesis is that, in the design of a social form of art such as architecture, the amount and kind of information available to the architect plays an important role in his design. The question is, "What kind and amount of information is useful?" Only the architect can answer this one, though the sociologists and psychologists could contribute to designing research for exploring the relationship between information known to the architect and his subsequent creativity.

Perhaps this focus on the utility of research findings and sociological analysis in architectural programming has some implications for the education of the architect. If information about user needs and requirements is deemed important in the design process, methods and techniques for the aquisition and use of relevant information might be considered one of the necessities in the training of architects. Architectural education might address itself to specifying the relevant kinds of information which are needed in the design process, to considering how the architect can gather this information employing the methodological tools used in the social sciences, to exploring how the architect can guide his client towards providing the kinds of information needed, etc.

Conclusion

In this paper I have tried to explore some of the research problems suggested by applying decision-making theory to architectural programming. These include the delineation and determining of sequence of programming decisions in order that the best qualified decision-makers might be chosen, that pertinent information about user needs and requirements might be gathered, that the role responsibilities of the client and architect might be specified vis-a-vis these decisions, that specific tools such asdecision tables might be devised, and that information might be classified for greater accessibility. Additional areas of exploration would be the relationship between the amount and kind of information and creativity, and the possible implications of greater emphasis on the concepts and tools of sociological research in architectural education. I look forward to the comments of the architectural decision-makers here today.

Footnotes

1 Robert Gutman, "The Briefing Process in Architecture," p.2. Unpublished.

2 Harry Bredemeier, "Transaction Analysis and Social Systems." Unpublished.

3 Harold Horowitz, "The Architect's Program and the Behavioral Sciences." Unpublished, 1965. Available from Science Facilities Section, Division of Institutional Programs, National Science Foundation, Washington, D.C.

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